Instructor: Brian Cannon

**Subject:** Understanding Earthquakes

**Standard 4:** Earth and Space Science: Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space. *(Focus: Geology, Meteorology, Astronomy, and Oceanography)*

**Essential Questions:** If the students are aware that the Earth is changing will they understand that this change is constant, and therefore, observable?

**Goals:**

1. To have the students understand what an earthquake is and how it happens.
2. To have the students understand how earthquakes are detected and studied.
3. Let the students use their knowledge to locate an earthquake.

**Objectives:**

1. The students will watch a clip of the most powerful earthquake ever to be recorded, 1964 Alaska.
2. The students will learn the origins of earthquakes and the terminology of associated with them.
3. Students will learn the tools that scientist use to study and map earthquakes.
4. Students will use theses same processes and map the location of an earthquake themselves.

**Prerequisite:**

The knowledge that was learned from the previous lectures as well as the knowledge that the students have from previous science classes are the only prerequisites.

**Materials:**

I will provide the movie clip of the Alaskan earthquake of 1964 and the PPT notes on earthquakes. There will be a worksheet that will be handed out that will be used to locate an earthquake. I will also bring in a slinky to demonstrate the different waves that are produced when an earthquake happens. The students will just need to have note-taking material and will be asked to bring in a compass for this lesson. The virtual Earthquake lab will be assigned homework and requires Internet access.

**Lesson Description:**

I will start the lecture by showing a short clip on the Alaskan earthquake that happened in 1964 as an attention-getter. I will then start the lecture on what earthquakes are and how they are located. After reviewing the different types of waves that an earthquake creates, I will pause the lecture to show them a demonstration of what an S and P wave look like using the slinky. I will conclude the lecture by demonstrating how earthquakes are located. They will be given the homework assignment and instructions and the Earthquake location worksheet. They will have the remainder of the time to work on the worksheet, but will be given extra time in the following class to finish and review.

**Special Needs:**

For those students that have difficulty in taking notes and paying attention, I will provide an outline of the important material that is being discussed.

**Conclusion:**

There’s a lot of material that is in this lesson, but is a great way to tie plate tectonics and plate boundaries together. The students will observe the pattern that exists in the world pertaining to the location of earthquakes and the location of plate boundaries. It will also be a great point to assess there understanding of the material so far in the unit plan.

**Resources:**

Tarbuck and Lutgens, Earth Science CD-ROM, Pearsons Prentice Hall, New Jersey,

Copyright 2006.

http://www.sciencecourseware.org/VirtualEarthquake/ - Virtual Earthquake lab homework assignment.